

The Orchadian

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Official Journal of the Australasian Native Orchid Society

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***Dendrobium polysema* 'Lorraine' AM/AOC-NSW**

Photo Bill Dobson

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The Orchadian

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CONTENTS

Features

Editorial	99
Ira Butler Awards	102
What the Groups are Doing? Newcastle Group.....	Len Field 105
Winner of the Bill Murdoch Trophy	Len Field 106
Orchid Conservation and Mutual Gains	Ruth Rudkin 107
Yass Retirement	Nita Wheeler 110
<i>Dendrobium bigibbum</i> var <i>compactum</i>	
'Coolies' and How I Grow Them	Peter Farlow 118
Cultivation and Flowering of the Complete Contents of a <i>Dendrobium bigibbum</i> seed capsule;	
A Novel Experiment	Ken Roberts 119
Growing Australian and Papua New Guinea	
<i>Dendrobium</i> species and hybrids	L&B Dobson 122
New combinations <i>Arachnorchis valida</i> and	
<i>Arachnorchis serotina</i>	DLJones 126
ANOS New Zealand Spring Show winners	J Walsh 127
<i>Diuris byronensis</i> A Troubled Past,	
An Uncertain Future	Alan Dash 129
Two New Species of Threatened <i>Diuris</i> from	
New South Wales	DL Jones 132

Photographs

<i>Dendrobium polysema</i> 'Lorraine'	Front Cover
<i>Dendrobium</i> Warragul 'Magenta' HCC-AD/OSCOV	100
<i>Cymbidium canaliculatum</i> var. <i>sparkseii</i>	101
<i>Dendrobium bigibbum</i> Newcastle Autumn Show	104
<i>Pterostylis curta</i>	113
Bush house construction	116
<i>Dendrobium bigibbum</i> clones Peter Farlow	117
Vern Frampton's cold glass house and	
<i>Dendrobium bigibbum</i> 'Alice'	120
<i>Dendrobium</i> Gerald McCraith	121
<i>Dendrobium</i> May Smith x <i>D. macrophyllum</i>	121
<i>Dendrobium</i> Gwen Slade	124
<i>Dendrobium psuedoglomeratum</i>	125
<i>Dendrobium falcorostrum</i>	128
<i>Diuris byronensis</i> (drawing)	136
<i>Diuris byronensis</i>	137
<i>Taurantha taurus</i> (<i>Pterostylis taurus</i>)	142
<i>Diplobium abruptum</i> (<i>Pterostylis abrupta</i>)	Back Cover

Editorial

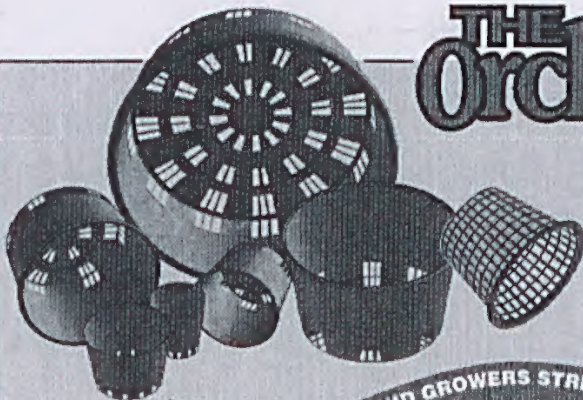
Firstly, I would like to thank all the members who have sent emails or written letters to me, or through ANOS Council, saying how much they have enjoyed the past two issues of The Orchadian. These have given me the enthusiasm to continue with these types of articles and stories about our wonderful orchids. I really need to point out though, that it is members who have written these articles. I only put them together, hopefully in a way, readers find interesting. All the papers I receive are used in each issue, so as one is finished I start looking for new material for the next. It would be wonderful to have a surplus of material with each issue.

Secondly, with this issue you will have received your renewal form for the next four issues, Volume 14, Nos 5, 6, 7 and 8. There has been a raise of five dollars in subscriptions to cover the postage and production increases in publishing The Orchadian. Our membership has dropped over the past few years and if this continues, we may find the production of this journal too expensive for the few who subscribe. Other journals are facing a similar dilemma. We currently have just over five hundred subscribers. For many years Council has wanted to have a membership of around a thousand, and if this can be achieved then it would be possible to improve the journal with more colour and more pages. If each member could find one other subscriber then this should give us the numbers to keep down

the fees and to produce a better publication. When the Australasian Native Orchid Society first began, any member of any ANOS Group subscribed to The Orchadian, then as Groups started to produce their own bulletins, the need for the Orchadian wasn't as essential, members happy enough with their Groups newsletter. Our Australian native orchids are unique and we need a journal to learn from, to educate and to enjoy.

In this issue there is a new orchid described, *Diuris byronensis*, Alan Dash who is our Conservation Officer has been involved with this orchid and has put together a paper detailing the trials and tribulations some of our native orchids have to endure. I hope you enjoy this issue.

Peter Eygelshoven Editor.



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***Dendrobium* Warragul 'Magenta' HCC-AD/OSCOV 2002 Grower Phillip Grech**
THE WINNER OF THE GOLD IRA BUTLER TROPHY - 2002



THE WINNER OF THE BILL MURDOCH TROPHY - 2002

Champion Australian Native Orchid Species of the Year

***Cymbidium canaliculatum* var. *sparkesii* 'Clem Scott'** Grower John and Irena Lojszczyk

The Winner of the Gold Ira Butler Trophy - 2002

for the Champion Australian Native Orchid Hybrid of the Year is
Dendrobium Warragul 'Magenta' HCC-AD/OSCOV 2002

This fine orchid, owned by **Philip Grech**, was Champion Australian Native Orchid Hybrid at the West Gippsland Orchid Club Show, and also received a Highly Commenced Certificate and an Award of Distinction from OSCOV. The sepals and petals have a pure white base, with the tips of the petals and margins of the sepals magenta and the labellum a solid magenta with a fine yellow keel.

The grex was recently registered by Philip Grech. It is *D. Tie-Dye* x *D. Rutherford Sunspot*, and was hybridised by Down Under Native Orchids.

Of the 24 nominations this year, 7 were from ANOS groups, 1 from NOSSA, 15 from State or AOC or OSCOV Affiliated Societies, and 1 from the Tinonee Open Day and Show. Nominated plants had also received a total of 4 quality awards during the year and one Award of Distinction. Again the overwhelming majority of entries were dendrobiums. No terrestrials were nominated.

The following ten "runners up" will receive **Silver Ira Butler Trophies**:

- *Dendrobium* Avril's Gold 'Brandon' AM/AOC-VOC 2002 - Michael Drobski (hybridist: Ray Hill)
- *Dendrobium* Graeme Banks 'Greta' - Don Cruickshanks
- *Dendrobium* Graham Hewitt 'Dee Pee' - David & Pat Harmer (hybridist: Neville Roper)
- *Dendrobium* Hewitt Glow 'Cobina' HCC/AOC-VOC 2002 - Joseph W. Crawford
- *Dendrobium* Ivory 'Buttercup' - Down Under Native Orchids (hybridist: D.U.N.O.)
- *Dendrobium* Kayla 'Longlast' - Colin Brandon (hybridist: Colin Brandon)
- *Dendrobium* Tie-Dye 'Magic Moment' - Norm & Kay Mitchell (hybridist: N. & M. Finch (D.U.N.O.))
- *Dendrobium* Vivkay 'Jessie' HCC/AOC-NSW 2002 - Don Cruickshanks (hybridist: D.U.N.O.)
- *Sarcochilus* First Light - Rob Lewry (hybridist: N. & M. Finch (D.U.N.O.))
- *Sarcochilus* Fitzhart 'Jack' - Albie Sherwood (hybridist: N. & M. Finch (D.U.N.O.))

The following will receive **Ira Butler Certificates**:

- *Dendrobium* Anne's Rainbow Surprise 'Tim' - Shirley Bedingfield
- *Dendrobium* Avril's Gold - Reg & Gill Shooter
- *Dendrobium* Berserker 'Lee' - Helen & Greg McCourt
- *Dendrobium* (Brinawa Charm 'Lucky's Toy' AM/ANOS 1992 x *speciosum* var. *curvicaule* 'TB') - Laurie Mountford
- *Dendrobium* Golden Nugget 'Elsie' - Norm & Kay Mitchell
- *Dendrobium* Hilda Poxon - John & Bev Gay
- *Dendrobium* (*johannis* x *canaliculatum*) - Harald Gepperd
- *Dendrobium* Karsun 'Kylie' - Henk van den Berg
- *Dendrobium* Kayla - I. & J. Morschel
- *Dendrobium* Quell - Eric Bailey
- *Dendrobium* Stunning - G. & M. Hazeldine
- *Dendrobium* Sunstar - Rito Silvestr
- *Dendrobium* Ivory 'Gold' - Down Under Native Orchids

The Winner of the Bill Murdoch Trophy - 2002

for the Champion Australian Native Orchid Species of the Year is
***Cymbidium canaliculatum* var. *sparkesii* 'Clem Scott'**

This splendid exhibit, owned by **John and Irena Lojszczyk**, was Champion Australian Native Species at the ANOS Newcastle Group Late Spring Show. It was a fine display of 18 inflorescences with 50 maroon flowers per inflorescence on a very well grown plant.

There were 27 nominations this year, of which 8 were known to be line bred, and nominated plants had also received a total of two quality awards and one AD. Thirteen nominations were from ANOS groups, 1 from NOSSA, 12 from State or AOC or OSCOV Affiliated Societies, and one plant eligible by reason of having received an AM.

There was a wide range of genera represented, although once again more dendrobiums than any other genus.

The following will receive **Bill Murdoch Certificates**:

- *Chiloglottis formicifera* - Roslyn Capell
- *Corybas diemenicus* - Nesbitt's Orchids
- *Cymbidium suave* 'Moruya' - Jim & Helga Stott
- *Dendrobium aemulum* - F. & H. Vernon
- *Dendrobium affine* 'Graham' HCC/AOC-QOS 2002 - Graham Markcrow
- *Dendrobium bigibbum* var. *compactum* - A. Lavis
- *Dendrobium bigibbum* 'No. 11' - Richard Pettigrew
- *Dendrobium canaliculatum* - Vivian John Barrett
- *Dendrobium kingianum* 'Cosmos' - Norm & Kay Mitchell
- *Dendrobium kingianum* 'Debra' AD/AOC-VOC 2002 - Ron & Pauline Coppin
- *Dendrobium monophyllum* - Gerry Walsh
- *Dendrobium speciosum* var. *grandiflorum* ('Mt Larcom Gold' x 'Kroombit Gold')
- L. & B. Dobson
- *Dendrobium speciosum* var. *speciosum* ('Windermere' x self) 'Lorraine' - L. & B. Dobson
- *Dendrobium speciosum* ('Neville' x 'Windermere') 'Hamersley' - R. & M. Jess
- *Dendrobium speciosum* 'William' - Mike Fish
- *Dendrobium speciosum* - Phil Barrett
- *Dendrobium tetragonum* var. *tetragonum* - Judy Penney
- *Dockrillia fairfaxii* - B. Britton
- *Dockrillia nugentii* 'Jeffrey' AM/AOC-NSW 2002; AM/ANOS 1998 - Fred Fear
- *Dockrillia wassellii* - Noel Oliver
- *Pterostylis baptistii* - Ron & Rose Boyd
- *Pterostylis obtusa* - Don & Jane Higgs
- *Pterostylis procera* - Nesbitt's Orchids
- *Pterostylis russellii* - Phillip Bunney
- *Sarcochilus hartmannii* 'Christine' - Mike Fish
- *Sarcochilus hartmannii* ('Dungog' x 'Red Snow') x ('Red Heart' x 'DB') - Phil Barrett

Congratulations to all this year's entrants, and good growing in 2003.



Photo Warwick Biggs

Newcastle A.N.O.S. Autumn Show.

Peter Presland
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Show time is fast approaching, commencing in April with an Autumn Show by Newcastle A.N.O.S. in conjunction with Boolaroo Orchid Society. The show will be at Club Macquarie, Lake Road, Argenton on the 12th & 13th April, 2003. The main feature of this show is the *Dendrobium bigibbum* complex that in past years has been well represented. This show has attracted exhibitors from societies as far away as Dungog, the Taree area, the Central Coast region and is well supported by many of the local society members. With such competition the standard of the entries is extremely high. *Dendrobium bigibbum* hybrids also feature well at this show with the number of entries growing every year.

The autumn flowering terrestrial orchid numbers are slowly but surely increasing which in future years will become an added feature in the show. The venue is accessible by public transport with Cockle Creek Railway Station along side the Club. The facilities at Club Macquarie are available with excellent meals served in the bistro at a reasonable price. Orchid plants will be for sale, as well as a raffle and free advice for those wishing to attend, so come along and have a great day with fellow orchid growers. Further information concerning this show may be obtained from our secretary, details can be found in the directory of A.N.O.S. groups in the rear of the Orchadian.

What the Groups are Doing?

A.N.O.S. Newcastle

Len Field
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Following on from the excellent articles by A.N.O.S. Vic. and A.N.O.S. Illawarra I have been approached by the Editor to write about A.N.O.S. Newcastle. Our group was formed by the late Bill Murdoch on the 5th October, 1963, making it the first A.N.O.S. group formed and was followed six days later by A.N.O.S. Sydney and since those early days we have been heavily involved with conservation. One of our achievements was by our conservation Officer Dougal Herd who, in 1988, discovered many *Pterostylis gibbosa* plants in the Hunter Valley. This was the first time it had been recorded north of Sydney.

Other activities are the ongoing work on *Diuris praecox* in conjunction with A.N.O.S. and the University of Newcastle, Ourimbah Campus. Our past conservation officer, Peter Presland, is leading a team of members working on an extensive survey and cataloguing of orchids on the eastern side of Lake Macquarie in conjunction with the Lake Macquarie City Council and they are also adding to the N.P.W.S. wildlife atlas. Peter and the other members of our group are heavily involved in this undertaking.

Another conservation project the club is very strongly involved in is the investigation of what orchids were on the sight of the Shortland Wetlands and the reintroduction of as many of these orchids as possible. One of these orchids, *Dockrillia teretifolia*, was once very prevalent to this area but had almost disappeared due to clearing and illegal collecting. It has now been reintroduced thanks to the efforts of one of our members who flaked seed and then grew them onto seedling size and with the assistance of a large working bee of members these orchids are now thriving on the swamp oaks (*Casaurina glauca*).

These wetlands were recognised by Ramsar in 2002 and have now been included in the Ramsar site. The Lower Hunter Estuary Wetlands Life member and A.N.O.S. Councillor George Hillman who has equipped himself with a Satellite Global Positioning System provided by the local council has been doing invaluable work on locating and cataloguing orchids in an

extensive area north of Newcastle. George has found 173 species including many unlisted species in the area one of, which was named after him *Caladenia hillmanii*.

Our meetings continue to have a strong attendance, with guest speakers when available, and the benching of plants is also strong with a yearly point score competition for the members. Meetings are very friendly with members and visitors, staying long after the meeting has closed, to have a chat and a cuppa. We have three A.N.O.S. judged shows a year, plus several displays, all well patronised with many plants benched. Our members have been very successful in these shows having won the Bill Murdoch Trophy a couple of times plus the Ira Butler trophy.

We have quite a few of our members who have now completed the A.N.O.S. judges course. Some of our shows are held in conjunction with Boolaroo Orchid Society and between the two societies we put on quite a show. Lastly, I must mention our field trips. These trips are highly patronised with a huge turnout of our members each time and with representatives from Warringah Group, Sydney, Central Coast and sometimes Mid North Coast Groups attending. We always see many orchids both epiphytic and terrestrial. These orchids are catalogued by Peter Presland and added to the N.P.W.S. Wildlife Atlas and when possible the club puts on a sausage sizzle for lunch. Visitors are always welcome on these walks.

-oOo-

***Cymbidium canaliculatum* var. *sparkseii* 'Clem Scott'**

Len Field
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Winner of the 2002 Bill Murdock Award

This plant has a very long history that stretches back to 1945 when an orchid grower purchased it at a show as a small seedling. This grower was named Clem Scott who was later a member of A.N.O.S. Newcastle in the very early days of its inception. Clem grew this plant for many years where it continued to grow and prosper, except at one stage for some unknown reason, it started to decline and was reduced to one single pseudo bulb. Clem persevered with different pot mixes and fertilisers until the plant again reached its full potential and has since never looked back.

Many years later, at a late Spring Show, long time A.N.O.S. Newcastle, committee member Irena Lojszczyk noticed an elderly gentleman browsing around the orchids on display and engaged him in conversation. He disclosed that he had an orchid that people called the "Black Orchid" and that it was very challenging to grow in this area and that it, at that time, had twenty four flowering racemes on it. Irena realised that he was referring to *Cymbidium canaliculatum* var. *sparkseii*, which was one of her favourite orchids. Irena asked if she could see and photograph this orchid which he was delighted to let her do. Irena's delight knew no bounds when she saw this plant and asked Clem if he ever decided to break this plant up would he consider selling her a piece.

Time passed on and Irena had forgotten about the *Cymbidium canaliculatum* until some years later at an A.N.O.S. Newcastle Spring Show, which was held at one of the local services clubs. One of the employees whose name was Ross Scott mentioned that his late father had a black orchid that once had thirty two flower racemes on it. His father had passed away and his mother had been trying to find the lady who had shown so much interest and taken photos of this plant some time ago so that she could give it to her. Needless to say Irena quickly made contact with Mrs. Scott with the result the plant now sits proudly on the front verandah of the Lojszczyks home which faces a northerly aspect and receives morning sun in the summer and all day in the winter. Like

its previous owner did the plant is brought inside on cold winter nights for protection.

At the late spring show 2002, conducted by A.N.O.S. Newcastle and against very strong competition this plant was awarded Champion Epiphyte, Champion Specimen and Grand Champion and was entered for the Bill Murdock award from which it emerged as the winner of this prestigious award.

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Orchid Conservation and Mutual Gains.

Ruth Rudkin

In the year 2000, the first International Orchid Conservation Conference was held in Perth, WA. The next year the Royal Botanic Gardens, Sydney, organised a small symposium at Mt. Annan, and in October 2002, the Royal Botanic Gardens, Melbourne held yet another symposium, Mutual Gains. This year, 2003, the second International Conference will be held in the USA. So far, the accent has been on the conservation of terrestrial orchids and it is proposed that this year the accent will be on epiphytic orchids, particularly those in rainforests.

Just what does Orchid Conservation involve? Quite a lot it seems, and the more you look into it the more complicated it is, as we learned at the Mutual Gains Symposium. Take ecological research into conservation of orchids in situ, for example. How can the value to actual conservation be tested? This involves years of study in the field, collecting data on biogeography, population ecology, reproductive biology, pollination ecology and genetics. From this, population models for Population Viability Analysis can be constructed, as Roger Cousens of the University of Melbourne described at the Symposium. He and Sarah Kimpton began a case study of *Caladenia versicolor* in 1999 and it will take more years to complete. Fiona Coates is meanwhile researching the endangered *Prasophyllum correctum*, and after eleven years of data collection found that there was no correlation between rainfall and flowering emergence, although a decrease in emergence and flowering could be detected after a five year fire free interval. Competition from associated vegetation strongly influenced flowering in the population showing that long term collection of data is useful in detecting fluctuations in response to management. Other examples given, were the effect of hand pollination on the capacity of *Caladenia behrii* to flower, and the effect of geology and climate, and associated plant species to define a potential habitat as for *Cryptostylis hunteriana*, for example.

How should a Population be defined? Deane Rouse, studying the orchids of the basalt plains of western Victoria found that these orchids represented a new ecological niche,

not readily colonized by species from the surrounding regions, and as a consequence were colonized by species of more distant floristic regions. These gave rise to a high level of orchid endemism because the colonizing species were subject to strong pressures resulting in rapid speciation. Then Georgia Basist and her group researched a polymorphic population of Spider orchids at Deep Lead, to find that nrDNA (nuclear somatic DNA) showed that they were all *Caladenia fulva* and could interbreed. On the other hand Elizabeth James's group found that the Victorian and Tasmanian *Prasophyllum correctum* were actually different species. David Jones followed and showed that DNA analysis showed that the widespread *Prasophyllum fuscum* is now shown to be twelve species, nine of which are threatened.

Of particular interest to growers of terrestrials, are the associated fungi, mycorrhizas. Now with DNA analysis it is easier to distinguish the different fungi isolated from different parts of a growing plant and also those necessary for seed germination. Ruth Raleigh's group found that *Caladenia* species require different pure isolates of *Sebacina vermifera* - like fungi for germination and growth, but that many isolates were mixed and that this mixture may account for inconsistencies in seed germination. A.C. Lawrie's group found that fungi isolated from the collars of *Caladenia formosa* at the flowering stage in its life cycle is the most effective at germinating seed. And just how this is accomplished in the seeds of *C. tentaculata* was described by Magali Wright.

Once a population has been defined, the question is how to manage it? The suggestion of seed banks was discussed by John Hill, who gave a very good description of an endangered population of *Caladenia hastata* at the Portland Aluminium smelter site. Monitoring began in 1979 in an initial population of twenty plants, habitat requirements studied, a second similar habitat looked for, plants caged, hand pollinated, seeds harvested and scattered in natural and transplant sites, with the result that in 2002 there are seventy seven known mature plants and over five hundred seedlings. Andrew Batty, from WA has done extensive research on seed viability, over time, in differing conditions, as well as the optimum times for in situ germination. The best germination was found to be when seeds were placed in field sites during the dry period following seed maturity, just after the break of the season. Brendan Sullivan followed by describing the work done to manage the recently discovered *Caladenia amoena* at Plenty Gorge Parklands. Previously fewer than fifty plants had been located at two other sites, Greensborough and Hurstbridge. The problems were many, rabbits, prolific grass, and absence of flowers. Various means of increasing the population were tried, caging, burning the grass, hand pollinating, collection of seed, and reintroduction to a new site. The work continues. The management of *Thelymitra epipactioides* at Patterson's Swamp, by the Bairnsdale Field Naturalist's Club, involved problems of grazing by many different animals, so fencing was tried. Monitoring is being continued in the exclusion zone as well as the area outside.

Further examples of population monitoring and community action were given by Rolf Weber on the effects of grazing and browser exclusion on ground flora associated with *Calochilus richae*, chiefly by kangaroos and wallabies whose numbers had been increasing in the woodland area which surrounded pastureland. The increasing numbers had become a problem for all the community. Andrew Dilley, Conservation

Officer of ANOS Victoria, reported on the work done by members and other volunteer groups, in many different regions in Victoria, E.G. the Western Goldfields, Western Basalt Plains, Mornington Peninsula, Belgrave South (Baluk William Reserve), Plenty Parklands and the Iron Bark Forests study, and is worthy of an article in itself. Outstanding work on orchid rich habitats of the grassy and woodland communities of the Midlands and at the Campbelltown Golf Course in Tasmania, was described by Aaron Dalgleish. Mike Duncan described his study of *Pterostylis despectans*, with monitoring, hand pollinating, searching for further sites, and searching for other colonies.

Raising orchids from seed, ex-situ conservation must also be considered. Helen Richards described the long struggle to conserve *Diuris frangrantissima*, as recently published in The Orchadian. Dick Thomson with an excellent talk on Orchid Cultivation for Conservation in which he stressed that ex-situ work should not be seen as a substitute for in-situ work but as a support and adjunct, and gave many examples of successful work done. Victoria has set up the Victorian Threatened Orchid Recovery Team with an Orchid Recovery Program. The team's steering committee consists of scientists, land managers and field naturalists to monitor and review the Program in Victoria. The organizations involved are, the University of Melbourne, RMIT University, the Royal Botanic Gardens Melbourne, Parks Victoria, Melbourne Zoo, AICOA, and ANOS Victoria Inc., with independent volunteers across Victoria. Involved in collaborative projects are Kings Park and Botanic Gardens Perth, the South Australian Department of Environment and Heritage, the New South Wales National Parks and Wildlife Service and the Tasmanian Department of Primary Industry and Water. They have an electronic mailing list, the address is Australian Network for Orchid Conservation, ANOC, and a website, managed by Rob Cross <http://lists.rbg.vic.gov.au>

The Way Forward was summed up by Adrian Moorrees of the Arthur Rylah Institute for Environmental Research. Some of his suggestions were; adaptive management and protection of habitats, identifying threats, translocation, artificial pollination and learning about population dynamics, habitat requirements, critical life history stages and cultural reintroduction techniques. These may be achieved by generating more community awareness, careful planning and setting of priorities, consulting with landholders and managers, encouraging and supporting research, networking across borders and co-operation between participants.

Following the two days of lectures and discussion there was a field trip to the

Mornington Peninsula to see some conservation in action. At Moorooduc *Diuris punctata*, under threat from a nearby development, a disused railway and an oval, was fenced off. At Stony Point, the many orchids there were subjected to slashing regimes and invasion of *Watsonia* plants, while at Woolies Point even more orchids, mostly in flower, were threatened by a proposed large housing development. Finally, successful conservation at the Baluk William Nature Reserve at Belgravia in the lower Dandenong Ranges, now the home of seventy three species of orchids. Later there was a trip to Portland to see the fine work rescuing *Caladenia hastata* at the Alcoa Aluminium smelter.

-o0o-

Australian Orchid Research. Volume 4 is now available.

Authors David L. Jones and Dr Mark A. Clements

This is part of the ongoing occasional series of publications by the Australian Orchid Foundation. This Volume contains a monographic treatment of *Pterostylis*. There are four parts:

- a. A Reassessment of *Pterostylis*.
- b. A New Classification of *Pterostylis*.
- c. A Synopsis of the Sun-tribe Pterostylidinae.
- d. An index with cross referencing of all taxa within the group.

This monographic treatment is a result of 25 years of research by the authors.

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Yass Retirement.

Nita Wheeler
'Bunduluk'
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Yass, 2582

In May 2001 my husband Jim and I sold our home in Elanora Heights, on Sydney's northern beaches, and retired to the country. We bought an unfinished, but liveable home on thirty three acres, about 13 km from Yass. The main criteria for us to move and buy here were, to be away from the neighbours and to have a house with verandahs all around. The house we bought had these and was bright and airy as well, only there was no garden and no shade house for my orchids. The only plantings that had been done were a dozen or so black wattles down the driveway. Fortunately the previous owners had left many of the old original yellow box in tact, but we still had a tremendous amount of work to do.

Ever since the late Reg Angus had introduced me to the delights of native orchids some six years ago, my little family had been growing very happily, suspended mainly in trees, in my backyard at Elanora Heights and I faced the prospect of moving them to Yass, with dread. Some I decided would not like the move and therefore offered them to friend as a bribe for her to take on the position of treasurer for the ANOS Warringah Group. Others like my cymbidiums were left for the new owners along with some of the *Dendrobium speciosum*, that were attached to rocks and really too large to move.

We made the big move on 16th July, 2001, right in the middle of winter, which was probably the worst time of all. On the day before the move a friend arrived with his twenty eight foot flat top truck, we loaded and packed the orchids as best we could. They were covered with a tarp and spent the night outside, at Pennant Hills, before making the trip to Yass, the next day, and to what was for some their final resting place. The day we arrived we experience freezing cold sleet and howling winds, so they were quickly unloaded and placed on the front verandah covered with tarps, and held down with bricks. Never move orchids, (if it can be avoided) without having somewhere cosy to put them on arrival.

I should explain that the climate, in the Yass district, is somewhat different to the temperate area of Sydney's northern

beaches. The heat is very different, there is no humidity and so far we have experienced temperature ranges from -6° to 38° C. Our house is built near the top of a hill and we experience strong westerly winds, but the advantage is that the fog lifts early for us and the frosts rarely come as high as the house. When I explain to you that impatiens are grown here as a prize annual and that fishbone fern is an exotic house plant, you will understand the conditions better.

Two weeks after we arrived and everything was still in shambles, we secured the tarps over the orchids and regretfully went to Hawaii for a wedding. When we arrived home we found disaster had struck. During our absence strong, cold winds had struck, getting underneath the tarp and literally freezing a lot of the orchids, the pseudobulbs and foliage, black. As I stood there gazing in disbelief and sobbing, my husband said our first priority would be to get a shade house built and save as many of the orchids as we can.

There were two garden sheds on the property, one had been used as a chicken house and the other as a dog kennel, with a small wire enclosure attached as a dog run. We covered this with lazerlite and crowded all the orchids into it, and then covered it with ninety percent shade cloth and hoped for the best, for the remainder of the colder months. During this frenzied activity, a lot of name tags were mislaid and dead orchids

discovered.

We decided to build the new shade house on the very top of the hill, there was no need to go high as there is nothing to block light or air, and it was six metres wide and two metres long. We did check on the prices for buying a hobbyists shade house, but the prices were ridiculous and since we are both tool wise decided to do it ourselves. Jim designed it, benches and all, and we are both very pleased with the result. The back wall faces west and is covered with green alsenite, leaving a 25 cm gap at ground level for air flow, and then covered it fully with ninety percent, wheat coloured shade cloth. The gap is essential as most of the wind comes from the west and this provides wonderful air flow for the plants in summer. The gap is closed with wooden slats when the wind is too cold. There are mesh benches around the four sides and a large bench in the middle, and since we built on what was once a chicken yard, we used ordinary road base on the floor. I have found this to be great for holding the moisture on those really hot days when all that can be done is to wet the floor.

Once that was completed we started the sad task of going through the collection and throwing out those orchids that didn't survive. Some were obviously dead, some were fine, and some had dead pieces with the healthy growths, so being the eternal optimist, I cut out the dead pieces and repotted them, without much hope. After all, in the past few weeks, I had just committed nearly every sin there was in the orchid world.

Halfway through the spring I started another throw out, and found that some orchids which at first inspection appeared past it were actually sending out new growths. Inspired by this we decided they could do with a little extra help in winter. A cold glass house was built on the northern side of the shade house and covered, except for the front facing east, with clear alsenite leaving the same 25 cm gap at ground level for good air

circulation. The front we covered with ninety percent shade cloth. Orchids that looked a little stressed in the shade house last winter went into the cold glass house for the winter with much better results. This cold glass house also has benches on all four walls and one in the middle and road base on the floor. Last summer we put a layer of shade cloth on the roof which can be rolled back for the winter. The temperature had been over 42° C on some days, I want to keep the plants alive and not cook them.

We are not on town water and for the garden we pump up from a dam to a holding tank and then the water is gravity fed to a pump connected to the garden taps, this is fortunate as the towns around here were all on water restrictions, through most of 2002 and 2003, as a result of the drought. Watering for one hour per day, as per restrictions, would not have suited me at all. I also grow *Epiphyllums* and *Bromeliads* in the green house and these also do very well. A little eco system has developed with frogs living in the bromeliads and ferns growing in orchid compost. The spiders too, big huntsmen type things, have taken up residence and happily prowl around eating any foolish bugs. This area is known locally as snake gully and we have seen a few of them, one of which I am pretty sure lives under one of the garden sheds, we work on the theory that a big brown snake would rather eat a mouse than bite us, so we make a lot of noise and stamping when going up the back. So far they have been just as anxious to get away from us as we are to have them go.

I purchased some *Pterostylis curta* tuberoids, about five years ago, at one of the ANOS Warringah group meetings and tried to do the right thing as per instructions given by another member. Unfortunately, the first year they did nothing, the next year a few leaves appeared which were promptly infested with red spider mite and did not flower, the following year it almost flowered, but terminated before opening, such is the problems of city living. The next year, 2001,

we moved and the pot was placed on the verandah, where it received early morning sun. I had not paid them any attention, with the building of the new shade house, and they flowered with eight blooms. At least they had enjoyed the move, and after four years trying, I was delighted. After they finished flowering and when the shade house was complete, I placed them in under the ninety percent shade cloth. The next year, 2003, I ended up over a short period, with thirty eight flowers. They had been in the same pot for all these years so last summer it was time to repot. When the pot had dried out, I tipped out the soil and was surprised to find over one hundred and fifty tuberoids. They were repotted according to size and as there are a few people in Yass interested in them, some will be given away in the hope of encouraging interest in our native orchids.

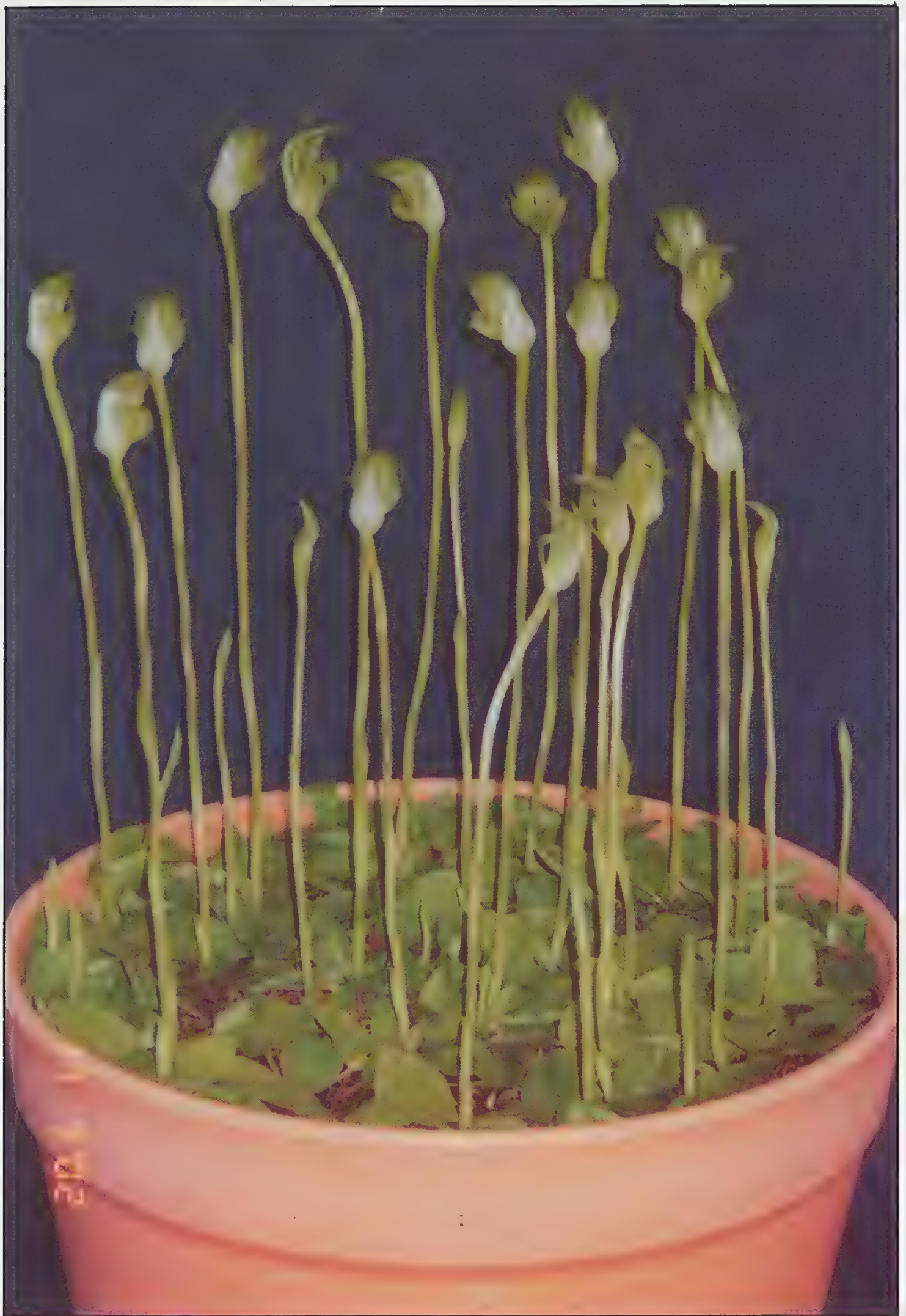
I had purchased a pot of *Dendrobium kingianum*, which had a different flower in it. Once home I waited until the flower had finished and basically pulled the *D. kingianum* apart to discover the tuberoids of *Thelymitra pauciflora*. It didn't flower for a few years, while at Elanora Heights, but always gave foliage and then it was in spring 2000 that it presented me with a few semi opened flowers. It came with me on the move and was treated the same as a *Pterostylis curta* and rewarded me the same. That year there were a few flowers, last year in the shade house there were beautiful, well opened long lasting flowers. These also have been in the same pot for many years, but I won't be repotting as the pot is not crowded and the orchids seem happy. So while I was a mere novice at growing terrestrials in Sydney, I am planning and hoping, over the next few years to become a little more professional.

Last September, we were down in the front paddock, looking for anything remotely resembling a terrestrial. We were amazed to find hundreds of what looked like *Microtis* species coming up where twelve months before the ground had been grazed bare.

A few weeks later we returned to check on them, most of them had disappeared as a result of the drought. Some of the remainder were dug up and taken to the garden and were watered along with everything else. They flowered and although they are only *Microtis*, it is wonderful to think that we have hundreds of these growing on the property. Where one terrestrial grows, there is a good chance that in a good spring there will be others.

A few months after arriving here I joined the local garden club and was asked to give a talk on native orchids. Most of the members are elderly and generally were not aware that Australia had native orchids. I took in some of my plants and photos of flowers and it was amazing the memories, it triggered in people's minds, of when and where they had seen these plants growing, not knowing what they were. I hope to get a collection of names and sites within the next few years of orchids in this area. Words spread and within a few months I was talking at Harden Horticultural Society with the same results, the difference there that some people grew *Epidendrums* and thought that they were natives as they had seen them growing along the roadside in coastal areas.

Two members from the local garden club asked me to try and identify a plant for them. They had been to the local tip, where they found and taken home the tipped out contents of two large pots. Someone must have wanted to keep the pots but not the plants. The members did not know what the plants were and thought that they may be some sort of succulent and broke it into smallish pieces. They potted them up, put them in the shade and watered them profusely. These plants were *Cymbidium canaliculatum*, which must have been spectacular in the large pots. I confiscated a few pieces, (my knowledge does not come cheap), and advised them on the best way to treat the remainder and returned home. I tipped my plants out of the potting mix, washed and potted them up in rotten bark, and put them in the full sun. So far, small



Pterostylis curta.

Photo and Grower Nita Wheeler

as the pieces are, one has flowered and the others have new growths coming. I don't hold much hope for their survival, but I had to have a try.

On an earlier trip to Boorowa, one of the nearby towns, I saw a sign at the museum about the Tarango Orchid, which the town is very proud of. This is *Prasophyllum petilum*, which they say grows, at one site on the Tarango road. I have since found out that it also grows at Hall, in the Australian Capital Territory.

On another trip to the coast, to buy some *Lycaste* from an orchid hobbyist, there was a scruffy looking plant on its side, lying

against the fence. She told me that her husband had bought it back from the bush forty years ago and that she wanted to take it to the tip. Asking if I wanted it, the reply was, do I ever! My new *Cymbidium suave* was growing in a large disintegrating pot which I promptly placed into another pot when we arrived home. It was placed in the shade house where it sat and sulked for a while, but then rewarded me by sending out twenty three inflorescences of fragrant green flowers that lasted for some weeks. It now has new growths developing. Hopefully this is a reward for the new home and not a last ditched attempt to propagate itself, before dying.

-o0o-

Here is a list of the native orchids I grow and have flowered here in Yass.

<i>Bulbophyllum aurantiacum</i>	
<i>Cadetia taylori</i>	
<i>Cymbidium canaliculatum</i>	
<i>Cymbidium suave</i>	
<i>Dendrobium linguiforme</i>	(<i>Dockrillia linguiformis</i>)
<i>Dendrobium pugioniforme</i>	(<i>Dockrillia pugioniformis</i>)
<i>Dendrobium rigidum</i>	(<i>Dockrillia rigida</i>)
<i>Dendrobium beckleri</i>	(<i>Dockrillia schoenina</i>)
<i>Dendrobium striolatum</i>	(<i>Dockrillia striolata</i>)
<i>Dendrobium aemulum</i>	(<i>Tropilis aemula</i>)
<i>Dendrobium tetragonum</i>	(<i>Tetrabaculum tetragonum</i>)
<i>Dendrobium falcorostrum</i>	(<i>Thelychiton falcorostrus</i>)
<i>Dendrobium jonesii</i>	(<i>Thelychiton jonesii</i>)
<i>Dendrobium gracilicaule</i>	(<i>Thelychiton gracilicaulis</i>)
<i>Dendrobium Delicatum</i> 'Bungan Castle'	
<i>Liparis coelogynoides</i>	
<i>Microtis unifolia</i>	
<i>Oberonia</i> (species)	
<i>Plectorrhiza tridentata</i>	
<i>Pterostylis curta</i>	
<i>Pterostylis baptistii</i>	
<i>Sarcochilus falcatus</i>	
<i>Sarcochilus hartmanii</i>	
<i>Sarcochilus Lois</i>	
<i>Thelymitra pauciflora</i>	

Those that I grow but as yet have not flowered:

- | | |
|--------------------------------|----------------------------------|
| <i>Dendrobium kingianum</i> | (<i>Thelychiton kingianus</i>) |
| <i>Dendrobium speciosum</i> | (<i>Thelychiton speciosus</i>) |
| <i>Dendrobium mortii</i> | (<i>Dockrillia mortii</i>) |
| <i>Diuris sulphurea</i> | |
| <i>Liparis reflexa</i> | |
| <i>Phaius tankervilleae</i> | |
| <i>Pterostylis pedunculata</i> | |
| <i>Rhinerrhiza divitiflora</i> | |
| <i>Sarcochilus olivaceus</i> | |

Generally all the *Dendrobium kingianum* hybrids are performing well as are the *Sarcochilus* hybrids.

I thought leaving the orchid fraternity in Sydney may leave me a little lonely, but as you can see there is still enough to keep the interest going.

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edited by David P. Banks

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My bush house under construction.



My bush house completed.

Photos Nita Wheeler



Dendrobium bigibbum var. *compactum* used in breeding.



Grower Peter Farlow.

Photos Ray Clement

Dendrobium bigibbum* var. *compactum

'Coolies' and How I Grow Them

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I owe a special thanks to my friend Brian Miller of Wingham, who several years ago rekindled my interest in the growing and breeding of these beautiful tropical orchids. After considerable research into the growing conditions of some growers, and the problems others were having, I designed what I considered to be the optimum growing house without the need for heat. The result was simple, cheap and extremely efficient.

Living on a small acreage in Taree, a small town near the coast 260 km north of Sydney, finding a good position for the cold glasshouse was not a problem. It was built in a north – south direction, which allows the sun to fall on the long eastern side at the earliest moment each morning and still strike the western wall as late as possible. This is especially important during winter when the sunshine quickly increases those low night-time temperatures.

The frame work is built from treated pine. The roof is pitched and has a covering of green polyfilm with a seventy percent shade factor. The walls are 2.4 m high with a 60 cm shade cloth insert completely all the way around the base. During the hot weather this allows the air to enter the house, pick up the moisture from under the benches as it rises past the pots and out through the gables in the roof which are enclosed with shade cloth. A drop down plastic sheet is used during the winter months to help keep the temperatures higher. The floor is covered with hardwood chips which soak up water and assists with keeping the humidity high, extra containers of water are placed under the benches during summer for higher humidity. The door is covered with shade cloth which helps with air movement in summer, during winter the door is covered with plastic to help keep the warmth in. A small solar panel also provides power to drive a small fan for added air circulation.

The house has one large island bench set for comfort, in my case, 90 cm high and has

an overhead watering system.

Winter temperature ranges from 0°C to 30°C inside the house and from 10°C to 45°C during the summer months.

Some simple growing tips.

These orchids are repotted during the winter months as they don't appreciate being disturbed during the summer growing season.

Never overpot, if I am are not sure I wait another year. As night temperatures start to fall, watering is reduced and I try not to water in the evening as these orchids do not like to be wet during the cool nights. I cease all watering around mid April, in cooler areas mid March may be preferred. As night temperature increase around the end of October, each plant is given a spoon full of slow release fertiliser. Depending on the daytime temperature, watering is started, gradually increasing to three or four times a week and always watering early in the morning, before the temperature rises too high. Air movement and humidity are critical and devices should be used if either of these are insufficient.

The flowers pictured here are of the latest *Dendrobium bigibbum* var. *compactum* seedlings grown in my house, totally without artificial heat. All have strong growths and not a blemish in sight. With beautiful clones like these being used in my breeding programme, I am looking forward to the future beauties currently in the pipeline.

Cultivation and Flowering of the Complete Contents of a *Dendrobium bigibbum* seed capsule.

- A Novel Experiment

Ken Roberts
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This is a belated, but still relevant, follow-up to a most interesting project conceived and carried out by the late Vern Frampton, of Berkley Vale, NSW.

In the winter of 1993, Vern wrote an article for *The Orchadian* (Volume 10, Number 12) on how to cultivate *Dendrobium bigibbum* seedlings in a "cold" fibreglass house. Vern used bottom-heating cables to provide the warmth necessary for the seedlings to keep growing during winter.

However, the most interesting aspect of Vern's project was the fact that he set a *D. bigibbum* seed capsule, flaked all of the capsule's seed, using agar and Aquasol®, and then grew on every one of the seedlings that germinated, hundreds of seedlings. Vern did an out cross of two beautiful line bred *D. bigibbum* orchids, given to him by Ken Russell of Dungog (No 617 x No 136) – a medium pink flower crossed with a white flower with a pale pink flush on the segments and a medium pink labellum. The parents are mentioned in *The Orchadian*, Volume II, Number 6, 1994 in an article by W Morris.

In April 1995, I was most fortunate to be able to visit Vern, and his wife Alice, in time to see a spectacular flowering of his *D. bigibbum* seedlings, and to be able to photograph them. At this time Vern was already very frail, but he said that he would write a follow-up article, on the flowerings, for *The Orchadian*. Unfortunately, Vern passed away and I am now doing a short follow-up, in Vern's memory.

The out cross produced some very interesting results. The flowerings ranged from pure white with 30% yellow on the labellum, through light and medium pinks to dark purples. The white was Vern's favourite, which he gave the clonal name 'Alice'.

I don't know what happened to Vern's orchids – perhaps a member knows and could give *The Orchadian* readers a final report.



For more information: Richard Fishlock Conference Chairperson. fishy@arcom.com.au
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Vern's cold glass house



Dendrobium bigibbum 'Alice'

Photos Ken Roberts



Dendrobium May Smith x *D. macrophyllum*



Dendrobium Gerald McCraith

Grower and Photos Lorraine and Bill Dobson

Growing Australian and Papua New Guinea Dendrobium species and hybrids.

Lorraine and Bill Dobson
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Cromer NSW 2099

Lorraine and I have been growing Australian natives for twenty years and for the last eight, or so, we have been growing some of the delightful and rewarding Papua New Guinea (PNG) "Latouria" species and hybrid Dendrobiums. Thanks largely to Phil Spence. I have had some wonderful days working, if you can call it that, in his bush house cleaning up plants, repotting, talking, listening and observing how these plants are best grown. Working in the bush house is my form of relaxation, away from the hassles and problems of the workday world. While working we discuss plants and potting methods, how and where different plants grow and the names of the orchids (hybrids) and the background on how some of them came into being.

It was during some of these potting sessions that I really got to look at the heart of the plants, the root system. Now do you remember that when you started growing orchids, and not just natives, that you were told that if you grew a good root system then the plant would look after itself. It seems that sometimes we forget the basics as time, potting methods and materials change, as well as the environment around our plants, and the change can be so gradual that you do not notice it.

Our growing area is a bush-house that was originally part of a commercial tunnel house, and it is 13 m long x 6.5 m wide and at the peak of the roof it is 3.6 m tall. It runs directly north-south, and is on the western side of the block. So we get good light and early morning sun, on most of it, during the winter. It's covered with 50% green woven shade cloth with 25% of the northern end an extra covering of 50% shade cloth all year round. Inside we have treated pine timber benches that are topped with galvanised weldmesh that the pots sit on. As well as this we have a layer of mesh and galvanised pipe 2.5 m above the ground that all our hanging plants are supported by.

Certainly the conditions in our yard have changed over the years. It didn't quite click with me till later, when I was working with Phil, and he mentioned how he had to change his bush-house as a result

conditions around his yard. At home, in the beginning, we had trouble holding the plants on the benches as there was so much wind, we had to prop bricks against them in the winter to prevent them from blowing off and ending up on the ground. In those days we had our bush-house on the eastern side of our block but then changed it over to the western side against a paling fence. At the same time, as this happened, our neighbour subdivided his block and built a house directly alongside our bush-house only 5 m from the fence with a result that now we have very little wind.

So here we get back to the basics again, to grow successfully you need light, water, air, and food. I was still using the same watering regime but, the potting mix we were using and, the lack of good airflow was making the plants stay wet for too long, especially in winter. Good airflow is airflow around ALL the plant and this includes the root structure as well.

Listening to Ken Russell talk on experiments he had made with measuring the temperature of pots and potting medium in winter, and recording the difference between the rim of the pot and the centre and realising it was colder in the centre. This resulted in Ken doing an experiment with placing chunks of styrene foam within the root system of the plant. The plants responded and the conclusion proved correct that the foam was

helping to keep the root area a more even temperature.

Phil Spence had been using a mix for most of the PNG Dendrobiums and Australian natives, of medium bark and bean bag styrene beads, preferably the large ones roughly 4 parts bark and 1 part styrene beads. He said that while in PNG they had been doing tests on some of the plants to see why some of them could withstand temperatures of 30° C during the day and yet down to almost 0° C at night. The recordings showed that while the temperature of the plant above the roots varied by 30° C, the root ball, which was buried in the peat moss didn't vary by more than 2° C and seemed to keep a constant 17°-19° C.

Thus the plant was able to survive and thrive in these conditions by insulating its roots. So while thousands of kilometres apart both orchid growers had come to the same conclusion, that if the roots were insulated the plants could stand a fair variation in temperatures.

When we first started to grow orchids there was a culture of potting up a plant and pressing down the mix so you could lift the plant up, and the pot and mixture would not fall off. Phil Spence taught a different technique, just hold the plant and pour in the mix then pat the sides of the pot to settle it down. If necessary top up with extra mix, then either stake the plant or a great idea by Phil, use a hanger to support the plant and tie the plant to the hanger with wire or twist-ties.

Using this system on some of our plants at first, I wasn't going to make wholesale changes just in case. However, after the first year we noticed that plants potted up like this were responding really well. So we potted up some more, and they went even better. Taking out plants this year from three years back, I must say they, have fantastic roots systems. So for us this potting method is working well. Another important thing learnt, is that most Dendrobiums should be

potted above the mix. In other words if the mix in the pot is shaped like a small hill then the orchid should sit on top of it, not buried above the eyes. This bark and styrene mix is perfect for Tropicool™ orchids too; finally we are growing them really well.

One of the subjects that we talked about was the "secret formula" that Phil sprinkled onto the bark and styrene mix before potting up. This was based on the UC-System published in the late fifties by the University of California on container management for plants with soil-less media. Phil copied me some of the relevant pages of different formulas and indicated the one he was using, and having success with. Deciding to try this as well, I was surprised how long it stays on the bark and seems to give the new roots something to get into. (refer article; The Orchadian; Volume 13, Number 11, page 505, Maintaining Your Orchid Collection Bill Dobson).

My goal in growing orchids, both species and hybrids, is to grow them to their maximum potential and if this can be done, they should reward me with a great display of flowers. To do this I realised that unlike in the wild where conditions were "hit and miss", the plants did not often reach their maximum potential because of where the seed fell and the orchid started to grow, with varying climatic conditions and availability of nutrients, orchids may or may not reach their full potential. So while I had been fertilising our plants it really was a bit hit and miss in my greenhouse as well. After a fair bit of research, and talking to people who grew their plants very well, I mapped out a growing or "orchid maintenance" program that would suit the plants that we grow, and where and how we grow them. This program would include watering, feeding, spraying fungicides and insecticides, so that we could get our "crop" to the optimum growth with all the nutrients required to produce a good head of flowers. The main thing was that to be effective it must be done on a regular basis, no excuses or deviations.



Dendrobium Gwen Slade

Grower Lorraine and Bill Dobson



Dendrobium psuedoglomeratum
Grower Lorraine and Bill Dobson

Photos Peter Eygelshoven

Saturday morning was chosen to fertilise with our program, rain or shine, EVERY Saturday for the length of the program. For our Australian species and hybrids, and probably 90% of all our orchids, growth is from spring through to autumn and flowering from July to October. For the PNG species and hybrids growth and flowering is from November to April. So from autumn to spring (winter) we do not have much growth and its usually cold and sometimes wet as well, so at this time of the year we do not fertilise and some times do not water for up to ten days. So our program starts in the first week in October and goes through to the first week in May. For us it works really well, and the plants are giving multiple growths and exceptional flowering. This year everyone has said what a poor year it has been and yet for us it has been our best flowering since we started.

We have and are continuing to get bigger and fatter pseudobulbs and these in turn are giving us better inflorescences and flowers. With our Australian and PNG species and

hybrids we are growing the younger plants on the benches and the mature plants are hung to give them the maximum air that our conditions will allow, I would still like more air movement. The PNG plants in spring and summer will be watered almost daily. At present all our watering is by hand, but this will change as I think that they will do even better with a good long drink. With over two thousand plants I use between 400-500 litres of water and it takes me about one hour to do the whole collection so on average each plant gets about one or two seconds of water. That sounds ridiculous doesn't it? With a watering system and misters I can spray the whole bush-house for fifteen minutes at a time and use less water as well.

If you are looking for plants that will flower over the summer months, that don't need a glass house, look good and can go to meetings, in flower, for three to five months, then you can hardly go past some PNG species and hybrids.

-o0o-

New Combinations

Two new combinations, required to validate names in the genus *Arachnorchis*, are made here:-

Arachnorchis valida (Nicholls) D.L.Jones et M.A.Clem., comb. et stat. nov.

Basionym: *Caladenia reticulata* Fitzg. var. *valida* Nicholls, Victorian Naturalist 59: 189 (1943).

Arachnorchis serotina (Hopper et A.P.Br.) D.L.Jones et M.A.Clem., comb. nov.

Basionym: *Caladenia serotina* Hopper et A.P.Br., Nuytsia 14(3): 453-454 (2002).

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Jenny Walsh
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The Spring Show 2002 was held at Eden Gardens, Mt Eden, Auckland 14th-15th September 2002. Truly a great setting, a fabulous garden set in an old quarry right in the middle of Auckland, which was built by the prisoners of Mt Eden jail. Unfortunately, this year's show clashed with the New Zealand Orchid Society Spring Show just around the corner. However this did not affect ANOS members who still came out in full force to put on a fantastic display of Australian and New Zealand Natives.

The plants were benched on the Friday and the judges arrived on the Saturday morning to do their bit, and I do believe they were impressed with the presentation and quality of the plants displayed. It was a very successful and rewarding show, and a credit to organizers and club members. Bill Liddy was awarded with an H.C.C for his lovely plant of Dendrobium Hilda Poxon. Congratulations to Bill and all other prizewinners.

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Trophies:

Grand Champion: The Sherman Cup <i>Dendrobium falcorostrum</i> 'Broadway' C.C.C./OCNZ	Jenny Walsh
Reserve Champ: The Morse Cup <i>Dockrillia teretifolium</i> 'Delicate Angel' C.C.C./OCNZ	Jenny Walsh
Best New Zealand Native: The Steinberg Cup <i>Drymoanthus adversus</i>	Bill Liddy
Best Specimen: The Bish Cup <i>Dendrobium falcorostrum</i> 'Broadway' C.C.C./OCNZ	Jenny Walsh
Best Sarcochilus: The Crofskey Cup <i>Sarcochilus falcatus</i> 'Clarrie' x <i>S. falcatus</i> 'Andrew'	Lex and Julie Sharp
Best Novice: The Sharp Trophy <i>Sarcochilus hartmannii</i> 'Janine' x <i>S. hartmannii</i> 'Red Heart'	David Brown
Best Species: <i>Dockrillia teretifolium</i> 'Delicate Angel; C.C.C./OCNZ	Jenny Walsh
Patron's Choice: The Collis Cup <i>Dendrobium falcorostrum</i> 'Broadway' C.C.C./OCNZ	Jenny Walsh

Dendrobium falcorostrum 'BROADWAY'

This is perhaps the most spectacular of the Australian native orchids, having a show of lovely snow-white flowers and a heavy, sweet perfume. Plants are normally found at elevations above 900 m from central New South Wales to south-east Queensland, where it grows mainly in the forests of the Antarctic Beech tree (*Nothofagus moorei*) although it favours the beech, also grows on other trees and tree ferns. As this plant is found at high elevations, it is subject to very cold conditions during the winter months it appears that these cold conditions are required to initiate the flower spikes.

We have a fairly good climate in New Zealand for growing most orchids, even though Mt Egmont poses as a back-drop for my orchid houses, it being some 20km away. *Dendrobium falcorostrum* actually sits outside under a large Magnolia tree; here it gets filtered sunlight all day long, and only being housed as the flower spikes

appear. Potted in a fairly coarse bark, receiving weak feedings of fertilizers on alternate days in the spring-summer and weekly in autumn-winter.

I bought this plant back from Australia in 1986, as a small division of about twelve canes and was divided into two sections; both divisions have grown well over the years. In 1992 I received a cultural award from the Orchid Council of New Zealand for one of the plants. This year the plant gave me great pleasure as it received Grand Champion at the Australasian Native Orchid Society annual Spring Show in Auckland, with an impressive 212 flower racemes.

For anyone serious about orchid growing, this in my opinion is an easy care orchid and is very deserving of a place in any one's collection.

Jenny.

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Diuris byronensis

A Troubled Past, An Uncertain Future

Alan Dash
23 Yeramba Cr
Terrigal N.S.W. 2260
A.N.O.S. Conservation Officer

History:

The Orchid species now described as *Diuris byronensis* was once common in the coastal heathlands on and adjacent to the headland at Byron Bay. It was first recorded here by the Rev. M.H.H. Rupp in August, 1917, who included it in the *Diuris abbreviata* complex. The next record, again as *Diuris abbreviata* was by W.H. Nicholls, who produced a colour plate in 1936, which is reproduced in his 'Orchids of Australia'. In 1987, D. Jones and M. Clements described a new species, *Diuris chrysantha*, which embraced the variable yellow diuris communities of coastal Wallum localities, including Byron Bay. The Byron Bay diuris had not been sighted for about fifty years despite regular searches and in modern times was considered extinct.

Habitat:

The orchid's habitat is what is known as 'Dwarf Graminoid Clay Heath', an ecological community of grasses and heath species generally no more than 50 cm tall. This heathland originally occupied about 63 ha of low, gently sloping ridges east of Byron Bay township. The dominating feature, the Cape Byron headland was the site of the majority of the original heathland. This headland has been heavily grazed by feral goats and other herbivores, and subject to intense human impact for many years and, as a result, the original vegetation has been totally destroyed by dense growth of invasive exotic weeds and grasses. The original heathland survives precariously, more or less intact, in a number of very small, isolated and extremely vulnerable remnants, amounting to about 5 ha in total.

Re-Discovery:

In August, 1998, noted orchid researchers, Ron Tunstall and John Riley during an extensive study of *Diuris* species, which extended from Diggers Camp on the North Coast of N.S.W. to north of Townsville along the coast, and returned to Sydney via inland Queensland and N.S.W., arrived in Byron Bay and decided to attempt to locate this orchid. They quickly realised they were wasting their time at the headland and commenced systematically targeting

the small remnant patches of heathland and, in the largest of these areas, which is about 2.5 km south-west of Cape Byron at a locality known as Paterson Hill, they were successful in locating a total of less than twenty scattered flowering plants. They were dismayed to also notice fresh surveyor's pegs and flagging tape in the centre of the heath and later learned that this was the site of an extremely controversial residential development.

Proposed Residential Development:

The site is a 1995 Development Application (DA), for a fifteen lot Community Title residential project. The site is completely surrounded by vacant Crown land, which is the subject of an Aboriginal Land Title Claim. The DA had been rejected by Byron Shire Council, but this decision was subsequently overturned on appeal to the N.S.W. Land and Environment Court. Construction had not commenced because legal access to the site had to be negotiated and the developer was required to gain approval under Byron Shire's Tree Preservation Order. The access was resolved in the N.S.W. Supreme Court in October, 1999, and the developer gave notice that work would commence before 1st November. No attempt was made to address the Tree Preservation condition.

N.S.W. Threatened Species

Nominations:

I became involved as A.N.O.S. Conservation Officer after being advised by John Riley of the situation. Contact was made with a group known as the 'Paterson Hill Action Group'. This group had a membership of several hundred Byron Bay residents whose aim was to have the site acquired and incorporated with the Crown land which surrounded it, eventually, when the Native Land Title issue was resolved, have the whole area added to the adjoining Arakwal National Park. Before the group became aware of the orchid, one of their members, Andy Baker, who is an Environmental Consultant, had lodged a nomination for the listing of the 'Byron Bay Dwarf Graminoid Heath' as an Endangered Ecological Community under Schedule 1, Part 3 of the N.S.W. Threatened Species Conservation Act, 1995. This nomination was successful and, after due process, was gazetted on 29th October, 1999. It was decided to lodge a separate nomination for *Diuris* sp. aff. *Chrysantha* (Byron Bay) to be listed as an Endangered Species under Schedule 1, Part 1 of the Act. This nomination was treated with some caution by the Scientific Committee, the committee responsible for the assessment of nominations, because they were unconvinced that it was a discrete species; it satisfied all other criteria. They suggested it be added to the species list accompanying the Dwarf Graminoid Heath nomination. We disagreed with this decision on the grounds that if any isolated plants were found to exist beyond the limits of the heathland, they would remain unprotected. Mr D. Jones certified that it was indeed a discrete, undescribed species and we were finally successful in achieving provisional listing on an emergency basis on 17th December, 1999 and eventually, permanent listing on 7th July, 2000. This listing had no effect on the already approved DA, but provided protection and prevented access over the surrounding Crown land.

The First Blockade:

About 7.00am on Thursday, 28th October, a low loader carrying a heavy earthmoving machine arrived and started to reverse down the narrow road which, provide access to the development site. Local residents quickly mobilised and proceeded to block the road with parked cars. Several hundred protesters assembled and obstructed access by sitting on the roadway. About twenty police arrived and began arresting protesters but the blockade remained solid as numbers steadily increased. After some hours of stalemate, the developer agreed to take no further action until agreement was reached on the conditions of the Tree Preservation Order. The demonstration, which was orderly and non-violent, dispersed. However, sixty four protesters, including one Byron Bay Councillor and two local Doctors were arrested and charged with obstructing and breaching the peace. Most of these charges were subsequently withdrawn. On the 18th November, the N.S.W. Police Commissioner, Peter Ryan visited Byron Bay to discuss law enforcement in Byron Bay on New Years Eve which is a perennial local problem. He was unprepared and embarrassed by the hostile complaints he received concerning police action to protect a developer who was defying a Tree Preservation Order, and promised to investigate the matter.

Continuing Action:

Byron Shire Council, at its November meeting, resolved 8-2 to apply to the N.S.W. Government for an Interim Protection Order (IPO) and an Interim Heritage Order (IHO) over the site and to seek advice on its powers to protect the orchid. They already had allocated \$700,000 towards the purchase of the site. There was no activity at the site over the Christmas and New Year period. The existing DA was due to expire on Wednesday 15th March if no 'substantial work' had been carried out by that date. There was no action by 10th March and Council successfully applied

to the Land and Environment Court for an order prohibiting any work before the Tree Preservation Order agreement was reached. The developer also applied to the same Court for an extension of time on the DA. This application was opposed by Byron Shire and was successful.

The Second Blockade:

Early in the morning of Saturday 11th March, in an attempt to carry out 'substantial work' prior to the lapse of the DA, and in defiance of the Tree Preservation Order, the developer began to move men and materials on to the site. The workmen were escorted by a number of uniformed security guards. Several hundred protesters quickly assembled and blocked access to the site. The police arrived, and, in a complete change of attitude, performed the role of preventing confrontation between the security guards and the protesters. Their presence avoided a nasty incident. No action was taken against the peaceful protesters. The blockade was maintained for five hours and the developer was duly

served with a stop-work order.

The Present Situation:

The DA has expired. No work can commence before a new DA has been lodged and approved. Any new DA must take into account the Threatened Species Conservation Act, 1995. Negotiations are continuing to agree on a reasonable figure for compensation, so far without success. Efforts to obtain sufficient funding for purchase of the site continue with some hope of agreement between the various levels of Government. *Diuris byronensis* remains critically endangered, surviving in such small numbers that will require careful management over a long period with no guarantee of success. The Paterson Hill Action Group remains strong and committed. They have a strong resolve to continue the fight that has now extended for eight years. They have demonstrated that direct action can be effective when public opinion is almost universally opposed to environmental degradation.

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Two New Species of Threatened *Diuris* (Orchidaceae) from New South Wales

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Abstract

Diuris byronensis and *D. callitrophila*, both considered endangered, are described as new. *D. byronensis* is illustrated and notes on habitat and ecology are included for both species.

Key Words

Orchidaceae, *Diuris byronensis*, *D. callitrophila*, endangered, new species, Australian flora, New South Wales.

Introduction

The genus *Diuris* includes a number of very widely distributed species as well as endemics with a narrow distribution that have adapted to specialised habitats. Two of these highly adapted taxa, considered by the author to be either critically endangered or endangered, are described here as new species.

Materials and Methods

Descriptions of taxa were made from fresh specimens. Dried specimens were examined from the following herbaria: AD, BRI, CANB, CBG, HO, MEL, NSW and PERTH. Unless otherwise indicated, all types (or photographs thereof) and collections cited have been seen.

Taxonomy

1. *Diuris byronensis* D.L.Jones, sp. nov.

Affinis *D. chrysanthae* D.L.Jones & M.A.Clem., sed folio singulari; floribus citrinis; labello lobis lateralibus latioribus; labellum mid-lobo basaliter cuneiformi; et sepalis lateralibus angustioribus, oblanceolatis, differt.

Typus: New South Wales; Byron Bay, 30 Aug. 1998, J.Riley & R.G.Tunstall (ORG 2761) (holo CANB).

Illustration: Plate 70, Nicholls (1969) - as

D. abbreviata.

Tuberous terrestrial *herb* growing singly or in loose groups. *Leaf* single, basal, semi-erect to erect, conduplicate, linear, 10-25 cm long, 0.2-0.4 cm wide, green; base sheathing; apex acuminate. *Scape* 10-30 cm tall, slender, green, 1-5-flowered. *Sterile bracts* 1 or 2, spreading, narrowly lanceolate, 20-40 mm long, 3-4 mm wide, acute to acuminate. *Fertile bracts* closely sheathing, narrowly lanceolate, 10-25 mm long, 2-4 mm wide, acute to acuminate. *Pedicels* 5-30 mm long, very slender, straight. *Ovaries* obovoid, 3-5 mm long, 2-3 mm wide. *Flowers* porrect, 20-30 mm diam., bright yellow with dark brownish or blackish markings; callus area yellow and brown; lateral sepals green with brownish markings. *Dorsal sepal* obliquely erect, ovate-lanceolate, 9-12 mm long, 6-7 mm wide; apex broadly obtuse. *Lateral sepals* obliquely deflexed, parallel, narrowly oblanceolate, shallowly falcate, 20-34 mm long, 1.5-2 mm wide; margins involute; apex asymmetrically acute. *Petals* obliquely erect to recurved; lamina ovate to elliptic, 8-13 mm long, 6-9 mm wide; apex broadly obtuse; claw 3-6 mm long, blackish, widest near the apex, tapered to the base, curved. *Labellum* 10-13 mm long, obliquely decurved, 3-lobed; lateral lobes oblong to obovate, 3.5-5 mm long, 2-3 mm wide, obliquely erect and closely flanking the column; outer margins entire to slightly irregular; mid-lobe ovate-cuneate, 7-10 mm long, 7-9 mm wide; margins entire to shallowly crenate; apex obtuse. *Labellum callus* consisting of 2

divergent ridges extending onto the base of the mid-lobe, incurved apically, a yellow median ridge extending onto the mid-lobe. *Column* porrect from the end of the ovary, 3.5-4 mm long, 2-2.5 mm wide. *Column wings* lanceolate, c. 4 mm long, c. 1.4 mm wide at the base, white; distal margins irregularly erose. *Anther* narrowly ovate, c. 3.5 mm long, c. 1.8 mm wide, green to brownish. *Pollinarium* c. 2 mm long, c. 1.3 mm wide; *viscidium* elliptic, c. 0.5 mm long; *pollinia* clavate, 2 mm long, white, mealy. *Stigma* elliptic, c. 2 mm long, c. 1.8 mm wide. *Capsules* not seen. **Fig. 1.**

Distribution and Ecology

Known only from the vicinity of Byron Bay in north-eastern New South Wales. This species grows in a community known as Byron Bay Dwarf Graminoid Clay Heath which in itself is classified as an endangered ecological community under NSW state legislation. It consists of a heath comprised of shrubs, grasses and sedges with occasional emergents of *Lophostemon suaveolens* (Sol. ex Gaertner) P.G.Wilson & Waterhouse and *Corymbia intermedia* R.Baker. The soil is a grey to white sand over clay. Altitude: 5-20 m. Flowering Period: August-September.

Recognition

Distinguished from other species of *Diuris* by the following combination of features: single leaf (possibly two) which is not purple at the base, bright lemon yellow flowers with brownish or blackish markings, broad labellum lateral lobes, a short, broad cuneate labellum mid-lobe and relatively narrow, oblanceolate lateral sepals.

Similar Species

Diuris byronensis is similar to *D. chrysantha* D.L.Jones & M.A.Clem., but that species, which grows in the ranges and tablelands of southern Queensland and New South Wales well inland from the coast, has darker orange-yellow flowers, narrower labellum lateral lobes, an attenuated basal portion on the labellum mid-lobe and obovate-spathulate lateral sepals.

Notes

This species was first brought to prominence by the Victorian orchidologist W.H. Nicholls who prepared a painting of the species (plate 70, Nicholls 1969), misidentifying it as *D. abbreviata*. Nicholls illustrates *D. byronensis* with two leaves, however all specimens seen by the author have a single leaf and it is uncertain as to whether this is a stable character or not. A limited number of specimens of *D. byronensis* are being cultivated as part of a conservation strategy (J.Riley pers. comm.).

Conservation Status

Diuris byronensis is listed under the Threatened Species Conservation Act of New South Wales in Schedule 1, Endangered Species, as *Diuris* sp. aff. *chrysantha* Byron Bay D.L.Jones (ORG 2761). I consider the species to be critically endangered as the only remaining population, which consists of less than 100 plants, is threatened by residential subdivision. Searches in other places with a similar habitat have failed to locate any further colonies. I suggest a conservation status category of 2E according to Briggs & Leigh (1996).

Etymology

The epithet refers to Byron Bay, the only known locality for the species.

Other Specimens examined

Cult. ex Byron Bay, 24 Sep. 2001, ORG 3688 (CANB).

2. *Diuris callitrophila* D.L.Jones, sp. nov., *D. fragrantissimae* D.L.Jones et M.A.Clem. affinis, sed multo robustiore; foliis majoribus (ad 35 cm longis et 0.9 cm latis); scapo ad 50 cm alto, floribus ad 9, parum fragrantibus; sepalis lateralibus longioribus (ad 12 cm longis); et columna majore (ad 6 × 4.5 mm), differt.

Typus: New South Wales; Oaklands, 20 Nov. 1996, D.L.Jones 14985 & M.Garratt (holo CANB; iso AD, BRI, HO, MEL, NSW, PERTH).

Tuberous terrestrial *herb* growing singly in loose scattered groups. *Tubers* more or less obovoid, bilobed to palmate, 15-35 mm long, 10-25 mm wide, fleshy, brown. *Leaves* basal, lax, 2-3, linear to linear-lanceolate, 15-35 cm long, 0.5-0.9 cm wide, convolute, green; base sheathing; apex acute to acuminate. *Scape* 30-50 cm tall, stout, 3-9-flowered. *Sterile bracts* 2, narrowly ovate-lanceolate, 4-12 cm long, 0.5-0.9 cm wide, acute to acuminate, closely sheathing; lowest bract sometimes extended and leaf-like. *Fertile bracts* narrowly ovate-lanceolate, 3-7 cm long, 0.2-0.5 cm wide, acute to acuminate, closely sheathing. *Pedicels* 10-45 mm long, very slender. *Ovaries* obovoid, 4-8 mm long, 2-4 mm wide. *Flowers* porrect, c. 25-35 mm diam., slightly fragrant, whitish, mauve or purple, often marbled and striped with darker markings, the labellum usually darker than the rest and often with prominent interrupted striae. *Dorsal sepal* porrect in the proximal half then obliquely erect, ovate to ovate-elliptic, 10-20 mm long, 8-12 mm wide; apex broadly obtuse to apiculate. *Lateral sepals* obliquely deflexed, narrowly linear, 4-12 cm long, 2-4 mm wide, more or less parallel; margins involute; apex asymmetrically acute to acuminate. *Petals* erect, slightly divergent; lamina narrowly to broadly ovate to elliptic, 6-16 mm long, 6-10 mm wide, tapered basally into the claw; apex obtuse; claw 4-10 mm long, curved, green to brownish, widest near the apex, tapered to the base. *Labellum* 10-15 mm long, obliquely decurved, deeply 3-lobed; lateral lobes erect, oblong-cuneate, 3-6 mm long, 1-3 mm wide, shallowly curved; outer margins entire to slightly irregular; mid-lobe transversely ovate-reniform to flabelliform, 10-15 mm long, 8-15 mm wide, with a central longitudinal fold; margins slightly irregular; apex obtusely apiculate. *Labellum callus* glabrous, whitish marked with mauve or purple, well-developed on the labellum base and on the basal part of the mid-lobe, consisting of 2 raised divergent ridges which incurve slightly at the apex, with an ill-defined central tapered ridge extending well onto the mid-lobe. *Column* porrect from the end of the ovary, 5.5-6 mm long,

4-4.5 mm wide. *Column wings* more or less lanceolate, c. 6 mm long, c. 1.5 mm wide, irregularly toothed. *Anther* narrowly ovate, c. 5.5 mm long, c. 2.8 mm wide, brownish purple. *Pollinarium* c. 4.5 mm long, c. 2.4 mm wide; *viscidium* elliptic, c. 1 mm long; *pollinia* clavate, c. 4 mm long, white, mealy. *Stigma* broadly cordate, c. 2.5 mm long, c. 4 mm wide. *Capsules* ovoid to obovoid, 8-11 mm long, 4-6 mm wide, erect.

Distribution and ecology

Restricted to the Oaklands-Urana region of southern New South Wales. The species grows in *Callitris glaucophylla* J.Thompson & L.Johnson woodland, either among dense grass in flat areas with associated *Eucalyptus microcarpa* Maiden, or amongst sparse grass and forbs on low sandhills. Soils are mostly red sandy loam which at some sites packs hard when dry. Altitude: c. 140 m. Flowering period: November-December.

Recognition

A robust species from the *Diuris dendrobioides* FitzG. complex that grows in *Callitris* woodland. Plants have unusually long leaves; a sturdy scape; slightly fragrant, whitish, mauve or purple flowers, often marbled and striped with darker markings, the labellum usually darker than the rest and often with prominent interrupted striae; unusually long lateral sepals and a large column.

Similar Species

Allied to *D. fragrantissima* but much more robust with larger leaves; scape to 50 cm tall (20 cm tall in *D. fragrantissima*); flowers up to 9 per scape (to 6 in *D. fragrantissima*); flowers slightly fragrant (intensely fragrant with a strong spicy scent in *D. fragrantissima*); longer lateral sepals; and, a larger column. The differences in habitat preference between the two species is striking - sandy soil in *Callitris* woodland for *D. callitrophila* compared with grassland in basaltic clay loam for *D. fragrantissima*.

Conservation Status

Diuris callitrophila is listed under the Threatened Species Conservation Act of New South Wales in Schedule 1, Endangered Species, as *Diuris* sp. (Oaklands, D.L.Jones 5380). It is currently known from four or five populations totalling about 300 plants. The majority of plants occur within the town limits of Oaklands and have no security of tenure whatsoever. A small population of the species occurs in the Urana Flora Reserve but the orchid is not conserved at any other site, most of which are relict patches of vegetation. The species is considered to be threatened by urbanisation and other developmental pressures such as roadworks. I suggest a conservation status category of 2E according to Briggs & Leigh (1996).

Etymology

Derived from the genus *Callitris* and the Greek *-philus*, loving, in reference to this species growing in *Callitris* woodland.

Other Specimens Examined

NEW SOUTH WALES: Oaklands, 18 Nov. 1988, *Tunstall* (CANB); Oaklands, reserve on N side of town, 17 Nov. 1989, *Jones 5380* (AD, BRI, CANB, MEL, NSW, PERTH); Urana Flora Reserve, 17 Nov. 1989, *Jones 5382* (CANB); c. 2 km N of Urana beside road to Lockhart, 17 Nov. 1989, *Jones 5383* (CANB); Oaklands, 27 Nov. 1992, *Jones 10838* (AD, BRI, CANB, HO, MEL, NSW, PERTH); Cocketgedong Farm, near Lake Urana, collected 6 Oct. 1996, flowered Nov. 1996, *Jones 14917 & Clements* (CANB); Oaklands, 20 Nov. 1996, *Jones 14985 & Garratt* (AD, BRI, CANB, HO, MEL, NSW, PERTH).

Acknowledgements

I thank John Riley and Ron Tunstall for collecting the type material of *D. byronensis* and bringing the plight of the species to my attention, Tom Jagtenberg and Allan Dash for information on the conservation of the species; also Peter Branwhite for bringing *D. callitrophila* to my attention and collecting specimens, Laurie Adams and Alex George

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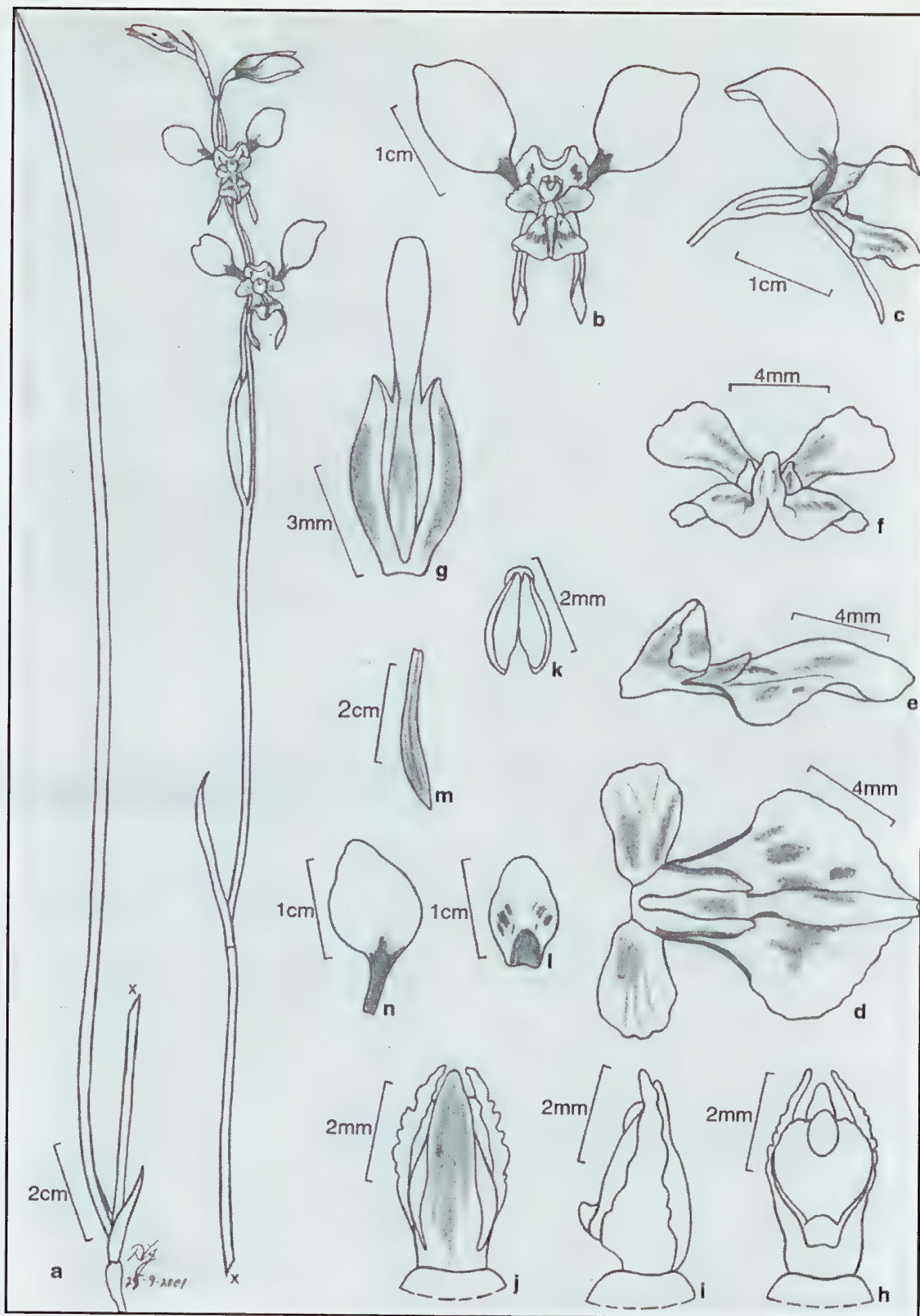


Figure Caption

Fig. 1. *Diuris byronensis*, cult. ex Byron Bay, NSW, ORG 3688. a. plant; b. flower from front; c. flower from side; d. labellum from above; e. labellum from side; f. labellum from front; g. labellum callus from above; h. column from front; i. column from side; j. column from rear; k. pollinarium; l. dorsal sepal; m. lateral sepal; n. petal.



Diuris byronensis (*Diuris* affin. *chrysantha*, Byron Bay)

Photo Ron Tunstall



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Book Reviews

Orchids of Australia.

By J.J. Riley and D.P. Banks

A.W. Dockrill
16 Fleet St
Atherton, Qld 4883

A work portraying, in colour, a selection of 150 of John Riley's drawings of Australian indigenous orchids, reproduced to a size a little over foolscap, with accompanying text by David Banks.

The work of Riley has, to my way of thinking, not been surpassed in Australia. Works of a somewhat similar vein, that of Nicholls, about half a century ago and R.D. Fitzgerald almost a century and a half ago are, even facsimile editions, long out of print. Riley's accuracy of portrayal and colour are truly superb and for each to have been completed in up to 24 hours, according to Banks in the preface, would label Riley a wizard. The figure of up to 50 hours given by Riley in an interview by the Sydney Morning Herald is more realistic, but still an indication of the artist's proficiency. Each of the illustrations shows the plant of a taxon, plus details of flower enlarged. One minor point; Of the 150 taxa treated, the pollinia of only one is shown. Surely the pollinia are very important parts of a flower!

The text is not a taxonomic treatment, nor a horticulturalists guide. The genera (usually only some species of them) are arranged alphabetically, but not the species. The original place of description, but not synonyms or references by other authors, usual distribution and flowering time are also given. However, the main part of the text, giving reliable and clearly the salient features by which a taxon, can be readily recognised. The name given to some taxa is not always that recommended by some modern taxonomists, but that by which Banks thinks readers are most likely to be familiar. This is understandable when one

realises the frequency of name changes, sometimes given without embellishment, in the concluding chapter.

UNSW Press, the publishers, and Everbest Printing Co. of China, the printers, have produced a great work in a size showing clearly the smallest details and faithful reproduction of colour, at a price given as \$120.00 and are to be congratulated. Let us hope they are able to publish the remainder of the 500 plus drawings by John Riley! The work under review cannot be too highly recommended to those wishing to possess a reproduction of a selection of 150 of John Riley's great works.

Australian Orchid Research Volume 4, 2002

A Review of *Pterostylis* (Orchidaceae)

by David L. Jones and Mark A. Clements

This is just a short review to let members know that D.L. Jones and M.A. Clements, through the AOF, have released the fourth edition of the Australian Orchid Research, through the Australia Orchid Foundation. I hope to do a far more detailed review when I have had a better and longer read of this book.

This volume is a review of the genus *Pterostylis* (Greenhoods). It is in three sections; 1. A Reassessment of *Pterostylis* R.Br, 2. A New Classification of *Pterostylis* R.Br and 3. A synopsis of the Subtribe Pterostylidinae. The first part covers the history of *Pterostylis* and some of the problems that went in naming and classifying some species, and gives some insight to why the genus, *Pterostylis*, needs to be split up. Part two classifies *Pterostylis* into seventeen new genera and displays maps showing the distribution of each genus. There a drawings to help you see

the differences between the genera. Part three is a synopsis of the *Pterostylis* species under their new names.

From my quick look over and brief read, this volume is very convincing, for acceptance, in the work that has been done and the way it is presented. I will need to get a good book on botanical terms! There is some very interesting reading and for those who have

any interest in greenhoods, this book is worth acquiring. It costs \$25 and is available through the Australian Orchid Foundation, 107 Roberts St, Essendon 3040, Victorian, Australia or through ANOS Council, PO Box 318, Willoughby, N.S.W. 2068.

ANOS website, www.anos.org.au.
Peter Eygelshoven Editor

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Taurantha taurus (*Pterostylis taurus*)

Photo Peter Eygelshoven

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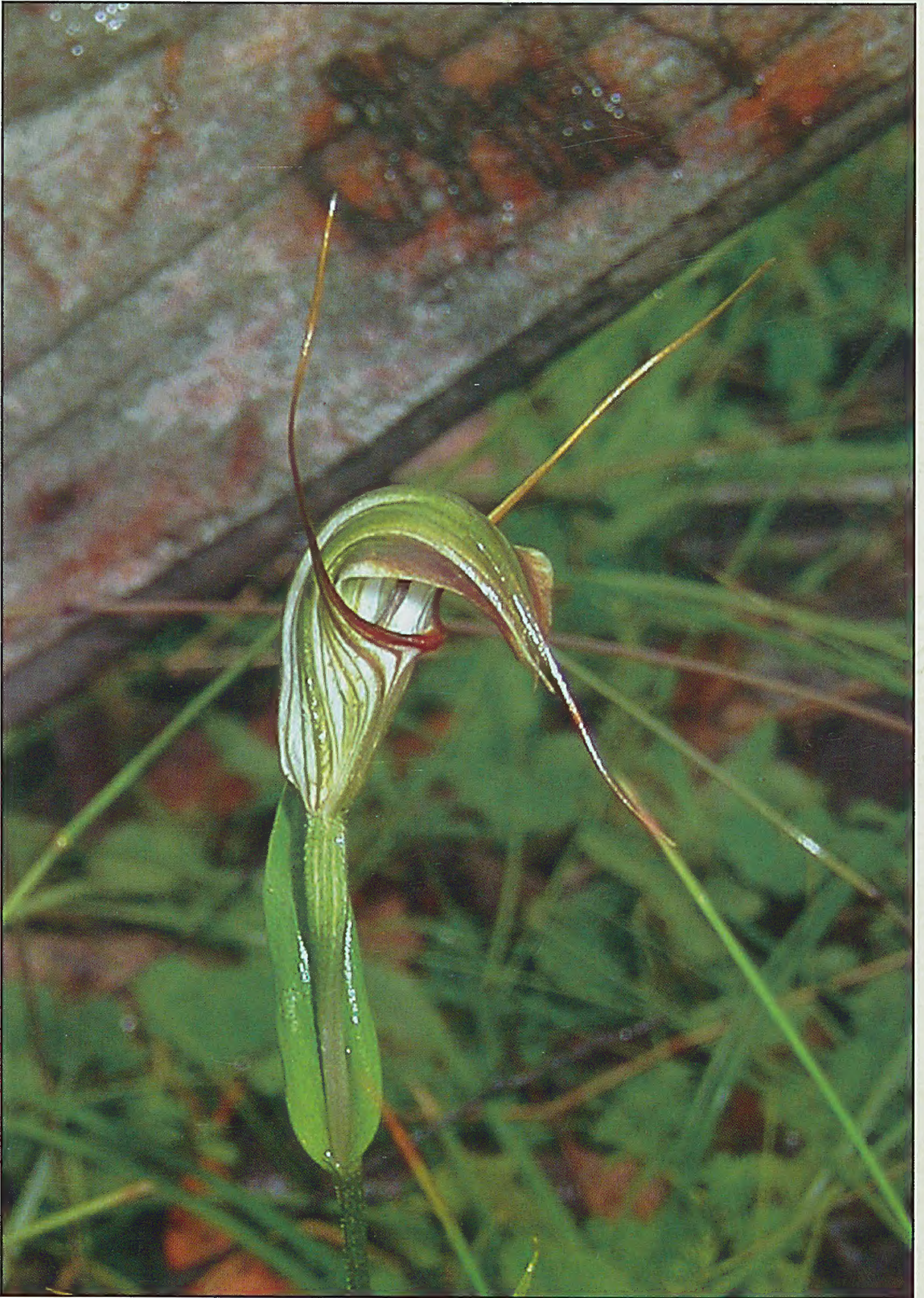
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Diplodium abruptum (*Pterostylis abrupta*) insitu at Polblue Swamp, Barrington Tops.